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PRE-APPEAL BRIEF REQUEST FOR REVIEW

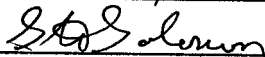
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Typed or printed name

Steven J. Solomon

Application Number

10815063

Filed

2004-03-31

First Named Inventor

Dan T. Moore, III

Art Unit

3748

Examiner

Tu Minh Nguyen

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).

Note: No more than five (5) pages may be provided.

I am the

☐

applicant/inventor.

☐

assignee of record of the entire interest.

See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed.
(Form PTO/SB/96)

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2007-06-15

Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

☐

*Total of _____ forms are submitted.

This collection of information is required by 35 U.S.C. 132. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11, 1.14 and 41.6. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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Claims 1 and 32 stand rejected under 35 USC § 103(a) as being obvious over Haselkorn in view of Foster. Claim 33 has been rejected under 35 USC § 103(a) as being obvious over Prigent in view of Admitted Prior Art. An Amendment under Rule 1.116 is being submitted herewith, canceling claim 33 and its sole dependency for purposes of appeal. Thus, the only claims at issue in the present appeal are claims 1 and 32, and their dependencies.

Both claims 1 and 32 recite an exhaust manifold having, *inter alia*, a strain isolation layer. In both claims, the strain isolation layer comprises “an intumescent mat that expands on heating and is effective to dampen unmatched thermal expansion between said outer structural layer and said insulation layer.”

The Examiner has erroneously taken the position that Haselkorn discloses a strain isolation layer. Specifically, he argued in the last Office action that Haselkorn discloses “a strain isolation layer (12) disposed between the insulation layer (10) and the outer structural layer (16), wherein the strain isolation layer is a compliant layer effective to dampen unmatched thermal expansion between the outer structural layer and the insulation layer.” Office action, p. 3. However, this assertion is incorrect. Layer 12 in Haselkorn *is not* a strain isolation layer. It is another insulation layer, *identical to layer 10*. Please see the entire specification of Haselkorn, where layers 10 and 12 are consistently referred to together, and wherein it is clearly disclosed that they have the same construction. For example:

...an exhaust manifold assembly [has] two layers of insulating elements 10,12.... The two separate insulating elements 10,12 are positioned about a liner 6 adjacent to one another and within annulus 22. * * * The insulating elements 10,12 of this invention provide sufficient insulation and the second metallic ring 14 seals a cast iron housing 16 from the layers of insulation 10,12 such that no excessive stress remains in the casting after solidification.

* * *

In regards to the insulating elements 10,12 of this invention, the construction of insulating element 10 has a thickness in the range of about 3.0 mm to about 15.0 mm.... As with insulating element 10, insulating element 12 has a thickness in the range of about 3.0 mm to about 15.0 mm....

The insulating elements 10,12 are quilted and have a ceramic fiber 26 encased within fiberglass 28. The ceramic fiber 26 of the insulating elements 10,12 is one of aluminosilicate, mialer woll and refractory ceramic fibers....

* * *

The insulating elements 10 and 12 are of the same construction, as shown in Fig. 3.

Haselkorn, col. 3 at lns. 25-62; col. 4, lns. 51-52.

See also, col. 4, lns. 4-14. As can be clearly seen, layer 12 in Haselkorn *is not* a strain isolation layer as the Examiner has suggested. There certainly is no teaching or suggestion in Haselkorn that layer 12 would be “effective to dampen unmatched thermal expansion between the outer layer 16 and the insulation layer 10 in Haselkorn. Layer 12 has *the exact same construction* as layer 10. How could layer 12 possibly dampen unmatched thermal expansion between layer 10 and the outer layer 16, when layer 12 will have exactly the same mismatch in thermal expansion with layer 16 as does layer 10? Respectfully, layer 12 simply is not a strain isolation layer as the Examiner has asserted.

Once it is recognized that layer 12 in Haselkorn is not a strain isolation layer, one must further acknowledge it would not have been obvious to modify layer 12 or to simply replace it with a strain isolation layer. In Haselkorn, it is said that the disclosed insulation structure, composed of the two insulating elements 10,12 as described, provides excellent insulating properties. Col. 4, ln. 30. Further, it is disclosed:

The insulating elements 10,12 of this invention provide sufficient insulation to maintain an outer surface 20 of the housing 16 at an acceptable temperature below about 200 degrees C. during operation of an engine.... Therefore, the outer surface 20 of the housing 16 of the manifold 18 of this invention is free of insulation. The insulating elements 10 and 12 are of the same construction, as shown in Fig. 3.

Col. 4, lns. 45-52.

Clearly, the insulating elements 10 and 12, having the same structure, are a key feature of Haselkorn’s design, which produce the excellent insulating properties mentioned above – so good, that no exterior insulation is required on the outer surface 20 of the housing 16. It cannot be considered obvious to modify layer 12 or to replace it with a strain isolation layer, because this will significantly impact and alter a key feature in Haselkorn, potentially destroying it.

Finally, although the Examiner incorrectly argues that layer 12 in Haselkorn is a strain isolation layer capable to dampen unmatched thermal expansion, he does acknowledge that Haselkorn does not disclose an intumescent mat for that purpose. To supply this missing element, Foster is relied-upon. Foster discloses a method for loading or “stuffing” a catalyst substrate 14 into a housing 12, so as to avoid crushing or damaging the substrate 14. This is

achieved by first wrapping the substrate 14 in a retention material 16, which can be an intumescent material, and then inserting the thus wrapped substrate into the housing 12. A cone 22 is used to compress the retention material 16 so it can be inserted into the housing. Once inside, the retention material re-expands to a degree sufficient to retain the catalyst substrate 14 within the housing 12.

To suggest combining this retention material 16 with Haselkorn's device, there must be some articulable reason for a person of ordinary skill in the art to make the combination. That reason must be evident from some objective source other than the present application, such as the references themselves, or generally available knowledge available to persons of skill in the art. The recent *KSR* decision by the Supreme Court did not change this basic requirement. That case merely made clear that the *reason* for combining art teachings need not be found in the references themselves, nor need it necessarily be the same as the reason underlying the present invention. "Under the correct analysis, any need or problem known in the field of endeavor at the time of the invention and addressed by the patent can provide a reason for combining the elements in the manner claimed." *KSR Int'l v. Teleflex Inc. et al.*, 127 S. Ct. 1727, 1742, 82 USPQ2d 1385 (2007). Identifying that *reason*, whether evident from the references themselves or elsewhere, remains a necessary prerequisite to a finding of obviousness.

In summary, without some articulable and objective *reason* to make the proposed combination, it cannot be said that substituting the ceramic insulating element 12 in Haselkorn with the intumescent retention material 16 in Foster would have been obvious. Of course, as *KSR* recognized, if one of the references *teaches away* from the proposed combination, such will still prevent any reasonable argument that the combination would have been obvious. "[W]hen the prior art teaches away from combining certain known elements, discovery of a successful means of combining them is more likely to be nonobvious." *KSR*, 127 S. Ct. at 1740, *citing United States V. Adams*, 383 U.S. 39, 51-52, 86 S. Ct. 708 (1966).

Turning to Haselkorn, that reference expressly states that compressive insulation will be ineffective to support and suspend a ceramic layer within the outer structural layer.

Finally, the ceramic liner needs to be supported after casting. The ceramic liner must be permanently located within the cast iron housing. If the ceramic liner is cast-in without the iron contacting it, the ceramic is essentially floating free, held in place only by the compression of the insulation by the cast iron. The insulation compression may provide some support, by not

sufficient support for long-term operation/resistance to engine vibration. The present invention is directed to overcoming the problems set forth above.

Col. 4, lns. 48-57 (emphasis supplied).

Thus, Haselkorn expressly teaches not to use a compressive layer to suspend a ceramic layer within a metal housing. Haselkorn states that such a construction will not provide sufficient support for long-term operation. This forecloses the Examiner's argument, at p. 9 of the Office action, that the reason for using an intumescent retention material 16 explained in Foster supplies the motivation to use that same material in Haselkorn. As the Examiner has explained, Foster uses such material to "maintain firm, uniform or non-uniform compression" under a variety of temperature conditions to exert a suitable retention force, so the catalyst substrate 14 remains suspended in the housing 12. However, using a compressive retention material in this manner is criticized and expressly avoided in Haselkorn, as "not sufficient for long-term operation." Therefore, it cannot be considered obvious to employ a compressive layer to support a ceramic layer within the metallic housing, as the Examiner has suggested.

Nor can any reason for combining the teachings of Foster and Haselkorn as proposed be found from any other source, besides the present application. As mentioned above, Haselkorn specifically discloses the "excellent insulating properties of insulating elements 10,12." It further explains that as a result of those excellent properties, the outer-surface temperature of the housing 20 can be maintained at an acceptable temperature during engine operation, *without* the need for external insulation. Col. 4, lns. 30-52. There would have been no objective reason to modify this key feature in Haselkorn, and jeopardize eliminating or diminishing the "excellent insulating properties" that result from the disclosed construction, wherein *both* layers 10 and 12 are ceramic insulating elements, and *both* of them have the same construction. To do so would have required inventive insight sufficient to modify Haselkorn contrary to its express teachings, which cannot be considered obvious.

Other reasons why the Haselkorn and Foster references cannot be combined as the Examiner has proposed are set forth in the Amendment "A" filed on January 4, 2007 (cert. of mailing). The panel is respectfully referred to that Amendment, in addition to the arguments presented above.